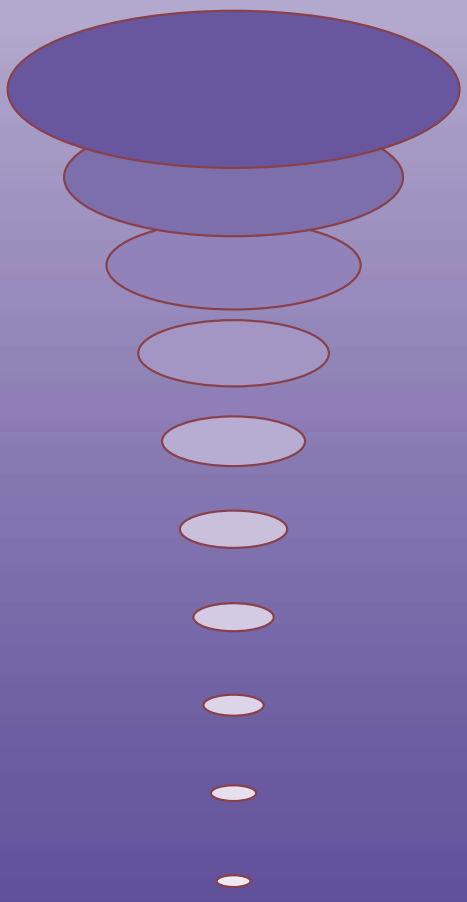
Improving Community Case Management of Childhood Malaria:

How Behavioral Research Can Help



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Effective policies and programs for malaria treatment are based on good science – good biomedical science and good social science.

Consider the following findings from studies of health seeking behavior:

- A great deal of treatment takes place in the community and home. Home care takes place before, during, and after treatment from a formal provider; in many cases, home treatment is the only treatment.
- A host of non-medical factors influence whether and when formal health services are used.
- When care is sought at a health facility, non-medical factors also play a significant role in compliance with treatment recommendations, patient perceptions of quality of care, and satisfaction with services.
- Drug policies are likely to be more successful if they take into account that acceptance of medications and compliance with regimens are influenced by the physical characteristics of the medication as well as caregivers' expectations about how the drug should act on the patient.

Malaria is a leading cause of death in Africa. Children under five are most vulnerable; at that age, uncomplicated malaria can progress to severe or fatal illness in as little as two days. Simple and effective treatments for malaria exist, but large numbers of children continue to die from the illness. A key malaria control strategy, therefore, is to promote prompt and appropriate treatment when illness occurs. Culture and behavior are important considerations for all types of malaria control strategies, but are of paramount importance in efforts to improve community case management of malaria. Understanding what families do in the face of childhood febrile illness in malaria-endemic areas is critical to improving treatment practices.

Although recognition of the role of social science in malaria control efforts is growing, many of those who develop policies and interventions are trained in the biological sciences and have little experience with research designs and methodologies that are especially useful to address behavioral and community issues. Even those who acknowledge the importance of social science research may be unsure of its specific uses – the types of decisions for which social science input is useful and the specific questions it may be expected to answer. They may also be unsure as to what is required to implement this type of research in terms of expertise, time, and money.

This Guide is for those who make policy and program decisions to improve management of malaria, particularly among children under five. It answers the questions:

(1) How can behavioral research help me? ... by showing in concrete terms how behavioral research can be used to inform several key policy and program concerns related to treatment for young children:

- Developing policies for home management
- Communicating with the community
- Improving patient-provider interactions
- Setting and implementing drug policy

(2) What does it take to do it? ... by providing practical information to enable policy makers to incorporate behavioral research into their overall planning process.

How is this kind of research done? A number of research protocols are available for looking at social aspects of malaria management, each with a particular emphasis and somewhat different set of methodologies. A companion volume to this document, *Community Case Management of Childhood Malaria: Research Protocol and Field Guide*, provides researchers with a set of instruments based on the care-seeking framework described below. A summary of the instruments in that protocol is found at the end of this document.

A note about terms...

Care-seeking, *treatment-seeking* and *community case management* are used interchangeably. They refer to all treatment actions undertaken in response to illness. It includes home treatment behaviors as well as consultation with any health providers, whether traditional or modern.

Home care encompasses all treatments the family decides to give, in contrast to treatments given on the recommendation of a formal provider. Home care includes palliative measures such as tepid sponging, traditional remedies such as herbs, and pharmaceuticals on supply in the home or obtained from community sources, including pharmacies when drugs are provided without a prescription.

How can behavioral research help me?

First, what kind of research is required?

The research described here is formative research – research whose purpose is to guide or "form" programs and policies. Therefore, this research is usually conducted prior to planning interventions or making policy decisions. Formative research can, however, be conducted at any point when information is needed. For example, it can be used to monitor acceptance of a new drug policy or to get an early indication of whether messages are reaching the community as planned. The focus is on practical research that will answer programmatic questions. It is meant to provide timely information at a level of precision suited to its fundamental purpose: providing the information necessary to tailor interventions to the local setting.

This kind of research aims to understand *behavior*, since its primary objective is to guide the design of programs to induce healthful behavior change. Changing behavior requires more than giving people information. Behavioral research can help decision makers address factors that affect care-seeking patterns – both "internal" factors such as perceived risk or perceived norms, and "external" factors such as cost or access to services or health products.

Formative research also provides information on *communication* topics that intervention planners need in order to work effectively with communities. For example, it is important to know who families consider a reliable source of information about treating febrile illness; who enters into the treatment decision process, and who influences those persons; what local values and views can be used as motivations for more healthful practices; and what the best way to formulate messages is.

Types of social science research useful to policy and program staff

A number of different terms are used to describe this kind of research. There is considerable overlap among them, and to some extent the terms are interchangeable.

Formative research is the broadest term. It refers to research undertaken to plan a new intervention or to improve an ongoing one. This research also includes information about communication aspects of intervention planning, such as best channels to use to reach the community. The methods used can be quantitative or qualitative or a combination of both.

Ethnomedical or ethnographic research generally focuses on cultural aspects of a topic, and tends to rely on traditional, usually qualitative, anthropological methods. Sometimes this research looks at only one or two issues, but in great depth.

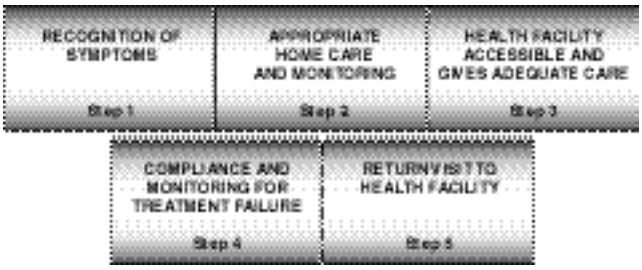
Behavioral research seeks to understand human behavior by using behavioral theory which identifies factors associated with behavior change to investigate in the research. It is also used to specify the behaviors that an intervention should address. Behavioral research can be qualitative and/or quantitative.

What should this research <u>not</u> be expected to do?

It is also important to understand what this type of research does not do. It is not meant to produce precise population statistics for the variables under study. Generally, rather small sample sizes are used so that topics can be investigated in depth. Percentages may be calculated, but the purpose for doing so is principally to indicate trends, rankings, and orders of magnitude. The level of precision is suited to the types of questions the research is meant to answer. For example, in terms of implications for programs, it does not matter whether the percentage of mothers giving incorrect doses is actually 71 percent or 79 percent; percentages in this range indicate a severe problem that will need to be addressed by the intervention.

What information does behavioral research cover?

Optimal case management involves a series of steps. Formative research can look at five basics steps in the case management process to identify weak points and show where interventions should target their efforts. The five-step community case management model is as follows:



Step 1: Recognition of illness symptoms

In order families to treat illness in a timely manner, they must be able to recognize symptoms when they occur. Symptoms must not only be recognized; they must be perceived as indicative of illness and needing treatment. Ethnomedical approaches provide information about awareness and recognition of symptoms, perceived severity, local terms used to identify illnesses and symptoms, and local classifications of illness.

Step 2: Appropriate home management, and monitoring for signs to consult a formal provider

After families recognize illness symptoms, they need to take suitable action. Not all cases of fever persist or become serious, and mild, short-lived cases can be treated at home. But it is important that families monitor for signs that the child needs to be seen by a clinician. Formative research can explain what kinds of things are done as a first response to fever, including administration of anti-malarials available in the home or from community sources. It can also explore how soon after noticing fever treatment is given, who makes the treatment decisions, and how and when families make the decision to seek outside help.

Step 3: Treatment at a health facility

The health facility step involves issues of access and quality of care.

Access: Sometimes a mother decides that the child should be taken to a health facility, but she finds barriers to acting on her decision. Barriers to access can come in many forms, such as cost of fees, medications, and transport; distance to the facility; lack of transport; limited service hours (facility closed evenings and weekends); need for childcare for children left at home; or need to obtain permission before leaving home. Once barriers are identified, interventions can be designed to overcome them.

Interpretation of symptoms influences treatment-seeking behavior and has implications for interventions

Fever: Mothers may classify fevers in many different ways, and make different treatment decisions depending on the classification. Early formative research in Malawi[1] found that families say they would seek modern treatments only when they perceived the fever to be due to specific causes. Thus, messages to the community should encourage mothers to obtain modern care for <u>all</u> severe or persistent cases of fever.

Convulsions: Convulsions are easily recognized, but are interpreted differently in different cultural settings. Some studies report that people attribute convulsions to supernatural forces and believe modern treatments to be ineffective in curing them. In these circumstances, families are likely to seek traditional treatments. In other places, families do associate convulsions with high fever and malaria, and seek modern treatment, although witchcraft may also be suspected and traditional treatments pursued simultaneously. Where convulsing children are given traditional treatments, communication strategies need to link convulsions with malaria and urge immediate treatment by a modern health practitioner.

Enlarged spleen: Classification of other symptoms as something other than malaria also leads to distinct treatment patterns. In Bungoma District, Kenya, the enlarged spleen resulting from repeated malaria episodes is often perceived as a separate illness condition, *lini*, that requires herbal rather than modern treatments.[2] As with convulsions, a link of *lini* with malaria and modern treatment needs to be firmly established.

Anemia: Although caregivers in some areas are aware of anemia and consider it a serious condition, it is seldom <u>recognized</u> until it becomes severe, and even then may go unnoticed. Even health providers have a difficult time detecting anemia on the basis of external signs. Where awareness of anemia is high, program planners can use prevention of anemia as a motivation for treatment, but cannot rely on recognition of anemia as a cue to seek care.

Quality of care: Optimal case management requires good care from health facilities. Although community-oriented research does not assess the technical skills of providers, it should, however, look at community perceptions of care as well as aspects of actual care that affect a caregiver's treatment behaviors.

Step 4: Compliance and monitoring for treatment failure

A caregiver's willingness and ability to comply with provider recommendations involves both human factors and external factors. It is important to determine whether the caregiver understands the treatment recommendations and if she believes they may help the child. Where multi-dose drugs are prescribed, caregivers must understand the administration regime as well as the importance of completing the full course of medication. With resistance growing to many types of anti-malarials, it is important to find out whether mothers recognize symptoms of treatment failure and how they define therapy success or failure. External barriers to compliance such as cost or availability of recommended medications or foods are also important topics for formative research to explore.

Access and quality of care affect decisions whether to take a child to a health facility[3]

I didn't go to the clinic because most of the time they say they have no drugs. When they have, they usually only give ½ a tablet and you just take it at the clinic. They never give you something to carry home. So they don't give enough. And those people at the clinic never really examine our children. They just write what we tell them. If you ask questions, they just shout at you...

I hate standing on long queues for hours. You arrive as soon as they open the clinic, but you can still be there even after lunch. I thought of trying treatments at home since I had an idea what was wrong with her.

I have got no money... I don't really like going to the clinic because the nurses there always scold us over very little things. They do not attend to our children when we don't have money and they send us away.

After traveling for so long to the clinic, it is very discouraging when they tell you there is no medicine.

Compliance with drug regimens is influenced by many local factors[4]

[...] we are told to complete the dosage course for all medication and I do that. So I am never left with any medication at home. Besides, the health center is very near.

Sometimes the children refuse to take CQ. It is bitter and they vomit and it is also often itchy. But many of us force them.

...sometimes just after administering two times you find the child recovers, starts playing. So you stop and keep the medicine, in case the child falls ill again.

A special kind of compliance issue relates to referrals. Children who are referred to another health facility represent the most severe or problematic cases, yet many are not taken to the recommended institution. Behavioral research can identify both perceptual and physical obstacles to caregivers acting on referrals.

Step 5: Return visit to health facility for treatment failure

What happens when a caregiver perceives that a child is not responding to treatment? Formative research can explain how decisions are made as to whether the child is taken back to the same health facility or a different one, or whether traditional sources of care are sought, or home remedies pursued. Planners will want to understand individual factors such as caregivers' expectations for recovery, external barriers such as cost or transport, and health facility factors such as provider decisions about using second-line drugs – all factors that encourage or discourage return visits when the child fails to recover.

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The steps in the care-seeking model show that there are many points at which breakdowns in the process can occur, and thus, many potential points of intervention. Actual practices rarely conform to the optimal model. By looking at these deviations from the model, formative research can direct intervention efforts to key problems and avoid wasting resources on less important ones.

Getting down to specifics: For what kinds of decisions can behavioral science help malaria control officials?

Why do malaria control policy makers need behavioral science? This section gives four examples of the kinds of issues that behavioral research can address and their implications for policies or interventions in four key areas:

Example 1: ❖ SETTING AND IMPLEMENTING DRUG POLICY

Example 2: ❖ DEVELOPING POLICIES FOR HOME MALARIA MANAGEMENT

Example 3: ❖ IMPROVING PATIENT-PROVIDER INTERACTIONS

Example 4: ❖ COMMUNICATING WITH THE COMMUNITY

Example 1: ❖ SETTING & IMPLEMENTING DRUG POLICY

Sound antimalarial drug policies are critical for providing consistent, effective case management both within and outside the context of formal health facilities. The World Health Organization Regional Office for Africa (WHO/AFRO) is developing a framework to help malaria control program managers establish and implement more effective antimalarial drug policies. A number of important considerations for these policies have already been identified[1] and include the *in vivo* efficacy of current and alternative regimens, the availability and costs of these drugs, and a broad range of issues related to the perceptions and behaviors of providers and the community. It is in addressing these latter issues that formative research can inform the establishment and implementation of an antimalarial drug policy. Formative research can answer questions such as:

- What do health care workers, drug vendors, patients, and caregivers believe about the effectiveness of recommended and alternative drugs mentioned in the policy?
- What do caregivers and providers expect from recommended treatments?
- Do caregivers and providers recognize treatment failures? How do they interpret them?
- How will caregivers and providers respond to a policy change that replaces a long-familiar drug like chloroquine with a less familiar treatment? What information is important for families to know about the new drug to increase its acceptability and correct use?
- What are the best ways to promote and implement an antimalarial drug policy?

Local perceptions of drugs influence treatment and show where public education is needed [2]

Q: Why did you give chloroquine this time?
A: Fansidar takes a long time to make the child feel better, and it is more expensive.

Q: What do Panadol, Malariaquine, and Fansidar do for a sick child?
A: Panadol reduces temperature, Malariaquine treats ordinary malaria, and Fansidar treats abrupt malaria.

No (I have never used Fansidar). I usually give CQ and Amobin syrup from the chemist. My friend told me that she used Fansidar on her child and it stayed some months without falling sick. I was also thinking of using it...

I didn't give chloroquine, as I had Amobin (Amodiaquine). As for Fansidar, it is more expensive. A friend said Fansidar is not good for small children as it is too strong.

Fansidar is good because it takes longer for the illness to re-occur. Chloroquine sometimes itches.

A study in Tanzania showed that caregivers were quick to recognize when children treated with chloroquine failed to improve. However, when children continued to be ill after receiving chloroquine, caregivers frequently reinterpreted the cause of the illness, and rather than return to a health facility for treatment with a second-line drug, sought out traditional remedies instead.[3] In such a setting, it would be important for clinicians to assure patients that alternative drugs are available should the child fail to improve. Formative research conducted in neighboring areas of Zambia and Malawi suggested that many caregivers modeled their home treatments after the practices of health workers in the formal sector.[4] As a result, home treatments in Zambia usually included chloroquine, which was routinely recommended at health facilities. In contrast, caregivers in Malawi consistently used sulfadoxine-pyrimethamine for home treatment, even though it was more expensive than chloroquine, because that is what health facilities had been recommending for the prior five years. These findings suggest that implementing a policy change through formal sector channels could influence home treatments as well, as long as the recommended drugs are made available in the community as well as the health facility.

Example 2: ❖ DEVELOPING POLICIES FOR HOME MANAGEMENT OF MALARIA

Studies of care-seeking universally report that a tremendous amount of treatment takes place at home. Some children are treated at home before help is sought at a health facility; others are treated only at home. Since malaria can progress from mild illness to severe disease or death in as little time as a day or two, appropriate home care can minimize life-threatening treatment delays. A study from Togo showed clearly that home treatments were almost always undertaken on the first day of illness, and the majority of treatments in the formal sector occurred more than 24 hours later.[5] But studies also show that home care is replete with problems. Evaluations of drug use at the household level find that many drugs are used for inappropriate indications, are administered in incorrect doses, and sometimes given in dangerous combinations. Home management guidelines can potentially mitigate this problem.

Some Ministries of Health are reluctant to develop guidelines for self-care for malaria out of concern that they signal approval for self-diagnosis and treatment of a potentially serious illness. Some fear that actively promoting home management would encourage inappropriate drug use and speed the development of drug-resistant parasites. Furthermore, policy makers may be unsure of the extent to which families are able and willing to follow such guidelines.

Nonetheless, home care is a reality and will continue with or without guidelines. Some means must be found to improve the quality care in the household. Therefore, some countries have developed guidelines so that clear messages can be communicated to improve home care behaviors.

Formative research is an essential first step to help ensure that guidelines are realistic and address the critical problems of the region. The research should also provide information that will help determine the best way to communicate and disseminate the guidelines to local communities, and identify other support needed to foster improved practices. Formative research can find out:

- What do caregivers do as a first response to fever? Why are those treatments selected and who influences treatment decisions? Which of those actions are positive and which are detrimental?
- What is the timing of those treatment actions?
- What are the common dosing problems? What influences families to persist or desist in multi-dose therapies?
- How do families define successful treatment? Unsuccessful treatment?
- How are decisions made whether to treat at home or elsewhere? What are the signs that indicate to families that the child needs attention from a health provider? How is severity defined by caregivers?
- What is the typical cost of home care, and how does cost influence home care practices?
- What are the common barriers to more optimal home care?

The types of treatments given, the timing of giving them, and the family decision-making process vary by setting. Sometimes traditional remedies are given. However, in most places, modern pharmaceuticals appear to be the treatment of choice for childhood fever. Leftover medications may be tried, or medications may be purchased based on past experience or advice from the vendor. A central issue is getting families to administer the correct anti-malarial, in the correct dose, as soon as illness signs warrant. Formative research can find out how families make drug choice decisions, how they decide how much to give and for how long, and how they decide whether or not the treatment is successful.

The other critical issue in home care is the family's ability to recognize that it can no longer manage the illness and the child needs to be seen by a modern health provider. Caregivers often decide to seek treatment outside the home when they see the child's condition persisting or worsening, and when they have access to a provider they perceive as able to treat the condition. The options for external care depend on the local health infrastructure, which can include both public and private, and formal and informal providers. In many places families turn to pharmacy employees, whether formally trained or not, for treatment advice. Formative research will identify the types of local providers available and the perceived benefits and barriers of each.

Recent findings from Kenya[7] and Nigeria[8] demonstrate that interventions to train shop keepers and medicine sellers can improve the quality of home treatment and reduce some of the drug use practices that trouble malaria control officials. Other countries are attempting to make anti-malarial drugs available through community health workers, who can readily distribute medications and monitor doses. Formative research focusing on materials development and testing has been used to help program managers produce locally-appropriate materials indicating dosage instructions for both vendors and clients.

Why do families sometimes prefer pharmacies to health facilities?[6]

In some areas, pharmacies play a large role in the treatment process and to some extent are replacing health facilities. Some pharmacy employees diagnose and treat patients, and even administer injections. Many do not require prescriptions for restricted drugs such as antibiotics or quinine. Pharmacies and other outlets are often more conveniently located than health facilities, and involve no wait time or consultation fee. Therefore, they present an attractive source of care for families.

Q: Why did you choose to go to the pharmacy?
A: Because it is near and cheaper. They have quick service and can even give injections if you want.

Q: Why did you decide to buy medicine from the chemist and not take the child to the health center?
A: The chemist is cheaper and has quick service. I am a business woman and have no time to queue at the health center. I always go to the chemist whenever my children fall sick.

Q: What made you go to the chemist and not somewhere else?
A: The chemist is cheap but [the dispensary] is very expensive. Simple malaria treatment is not less than 100/= and I did not have it.
Q: Is there anything else to make you go to the chemist, apart from money?
A: There are no queues at the chemist, and the attention is good compared to [the dispensary].

Example 3: ❖ IMPROVING PATIENT-PROVIDER INTERACTIONS

Ethnomedical studies focus on community perceptions and actions, but need to take into account aspects of caregivers' experience in the health facility that affect their treatment decisions and behaviors. *Perceived quality of care*, whether or not it reflects actual quality of care, is an important determinant of health facility utilization. Once health services are used, the nature of the interaction between patient and provider influences willingness and ability to comply with treatment recommendations.

A number of assessment tools are available to evaluate the quality of health services and capabilities of clinicians.[9] It is not the purpose of community research to duplicate those tools or assess clinical skills. It is, however, important to understand the caregiver's perspective of the health facility and to identify those factors that encourage or discourage the caregiver being able to proceed with optimal treatment. Thus, there may be some overlap as formative research in the community documents some basic aspects of care that affect community perceptions and have implications for the training of providers.

The following is a sampling of the kinds of questions that social science research can answer about the community perspective that have implications for health services:

- How much confidence does the community have in the health facility to treat malaria in young children, especially in comparison with other treatment options?
- What characteristics of the health facility and provider influence caregiver decisions to seek care there? What factors contribute to confidence in and satisfaction with care received, and make it likely the caregiver will return for future episodes of childhood malaria?
- What treatments do families typically try before coming to the health facility, especially those that a health provider should ask about in order to assess severity and make appropriate treatment decisions?
- How do examination procedures affect perceptions of quality of care?
- What conditions increase the likelihood that a caregiver will remember how to administer medications correctly? What conditions deter caregiver understanding of correct administration?
- What needs to be included in training to make providers more effective in gaining the trust and confidence of patients, and in increasing treatment compliance?

Even though medical history taking and examinations are the province of clinicians, caregivers may interpret and respond to those activities in ways that will affect their confidence in the health facility. Some caregivers feel more confident in the exam if the child is physically examined or instruments are used. In some places, mothers feel that providers do not want to hear much about the history of the illness, and feel discouraged from either offering information or asking questions. Caregivers may leave the clinic confused about how medications are to be given and unaware of the importance of completing a multi-dose regimen. In these situations, better communication on the part of dispensing staff and simple visual or written instructions that families can take home as a reference can go a long way towards achieving adherence to dosage standards. Formative research can identify how communication can be improved and how to best design family take-home reminders on dosage.

What makes caregivers satisfied with care at the health facility?[10]

Q: Were you happy with the treatment at the clinic?

A: Yes, because the medicines I was given helped cure my child and I was told to go back after two days if the child does not improve. We go to clinic so that we can be given medicines.

[I was satisfied because...] *my child was examined. The doctor looked at the eyes and ears and felt the chest and body.*

Q: Are you happy with the way the clinic operates?

A: Well, if it is a nice person who attends to you, if you go back because the child's condition is not improving, s/he will change the medication or let you see the doctor. Whereas others will shout at you that you are not giving the child the medicine properly and give you the same medicine again. The other thing is that they do not examine the child, they just take what you say and give medication.

They don't examine child and don't give enough medicine.

Sometimes your child is ill and you go to the clinic. But then [...] you find that the child is getting worse. When you go back, they send you back and they just tell you to complete the course [of CQ].

Families also make judgments about the capabilities of clinicians based on whether or not the child recovers. When the child does not respond to treatment, confidence in the provider is eroded. Especially in countries where a high degree of resistance to the front-line drug exists, it is vitally important that providers clearly communicate signs of treatment failure, praise the caregiver for bringing back a child who has not responded, and immediately prescribe the second-line drug. Formative research can show if any of these elements is missing and whether the lack is deterring families from taking appropriate action in future cases of treatment failure.

Example 4: ❖ COMMUNICATING WITH COMMUNITY

Interventions to improve care-seeking will involve communication with the community. Often planners assume that the community knows little or nothing, and develop communications that start from the beginning rather than from where the community is.

Formative research can show what information the community needs in order to improve management of malaria, as well as the best means of delivering it. In addition to examining the care-seeking process, formative research should gather other information that will equip planners to work and communicate effectively with the community. For example:

- Who are currently or potentially the most important "actors" in the care-seeking process? Who influences those actors?
- What information is most important for them to have?
- Who is a credible source of information in the community's eyes?
- What are the best means for conveying that information?
- What terminology and illness concepts should be used?
- What resources does the community have that would enable it to more effectively manage malaria?

Although mothers are the primary caregivers, others may influence her decisions. Fathers may enter the picture when medications are purchased; grandmothers may give advice; pharmacy employees may recommend medications. Even where people are dissatisfied with the health facility, health providers are usually viewed as a credible source of information and are highly influential. It is usually advisable for programs to involve community members besides the mother, and formative research will show who is most important to bring into the process.

Often programs must work with groups other than mothers

A study in Ghana reports that before taking the child for care, a mother must obtain permission and money from her husband or the head of the compound, who will often consult with ancestors through a soothsayer to determine the cause of illness and appropriate actions to be taken.[11] Field research with these "influentials" can bring them into the process to help determine the best way to surmount the problem of delayed treatment.

Behavioral research should identify key information and other support the community needs in order to improve case management. In some places, the main messages may center on the necessity of taking the child to the health center quickly, while in others the primary problem may be incomplete courses of medication. The research should also help determine the best way to communicate these messages. For example, local and biomedical definitions of the term "malaria" often differ. Thus it may be advisable to talk in terms of specific symptoms instead of illnesses, to maximize the likelihood that families and clinicians are talking about the same thing. Formative research may also provide guidance on who is a credible source of information about malaria treatment. In Zambia, drug vendors were not considered reliable sources of information about treatment, since their primary motive was seen as commercial. In contrast, drug vendors in Kenya, especially those working in pharmacies, were often consulted regarding treatment. Therefore, strategies that involve drug vendors are more likely to be successful in Kenya than Zambia.

There are a number of "channels" for communicating with communities – for example, various community mobilization activities, mass media (radio or television), small media (posters, pamphlets), newspapers, drama, community organizations, and other person-to-person mechanisms. All planners want to use communication resources efficiently, and formative research provides guidance as to what is available and potentially effective in the project communities. Sometimes care must be taken to look not just at what is available to the community, but to the primary caregivers – mothers – in particular. Perhaps households have radios, but men carry the machines with them when they leave the house, and women have little time to listen. Intervention strategists may wish to direct messages to men via the radio, by, for example, giving them specific information on malaria treatment, or encouraging them to make the radio available to mothers at a particular time when women are home and health programs are being aired.

What does it take to do behavioral research?

The examples just discussed demonstrate the importance of understanding community treatment behavior when developing policies and programs to improve case management of childhood malaria. Decision makers who are convinced of the role of social science will want to know how to plan to have formative behavioral research conducted in their region. This section provides planners with an idea of what this kind of research requires in terms of expertise, time, and money.

Doing this kind of research need not be daunting. Much can be learned in a short amount of time with a modest amount of resources. A pair of researchers already versed in care-seeking issues for malaria and experienced in the methodology can produce a solid base of reliable information after a week or two in the field. Less experienced field workers will require more time so that they can receive training in the issues, the methodology, recording of data, and analysis. Research that is focused on a few key questions can produce important information in a short amount of time, although more comprehensive studies will require more time.

Who can do this kind of research? What expertise is necessary?

Formative research should be planned and managed by a principal investigator with expertise in behavioral field research. Such a person may have a background in fields such as anthropology, sociology, communication, and public health – but the critical requirement is experience with field methods applied to public health behaviors.

The principal investigator should collaborate with project personnel to determine the questions the research is to answer. Where no prior care-seeking studies have been carried out, the research should look at all steps in the process model described in the first section of this document. The protocol in the companion *Community Case Management of Childhood Malaria: Research protocol and Field Guide* specifies topics and research questions and can serve as a guide, but adaptations will be necessary in order to reflect the particular emphases of the project and the local health infrastructure context. (See summary of protocol in the back of this document.) Where time and resources are especially limited, the protocol can be streamlined to focus on a smaller set of the most important questions.

Sometimes smaller specialized studies on a particular topic are called for. Perhaps, for example, a ministry of health is considering changing its drug policy and needs timely information about community factors that would enter into the decision, such as negative or positive perceptions of the new drug. (See prior example, Setting and Implementing Drug Policy.) Or possibly providers know that mothers are not taking children to a referral institution, and they want to find out what is preventing them from doing so. A researcher experienced in field methodologies can design a study that will address the practical questions that planners need answered.

How much does it cost?

The cost of the research will also vary, and depends mainly on how many communities need to be visited (sampled) and the cost of personnel and transport. The larger the geographical area and the more diverse the population, the greater the number of days required in the field.

Budget Categories

1 Principal Investigator or research supervisor
- fee
- per diem

4-5 data collection team members
- fee
- per diem

1 data manager
1 secretary

1 driver
vehicle/gas

Copying and supplies for training and fieldwork

What are the steps in the process and how long do they take?

There are several steps to the process of planning and implementing a field study. Those steps are listed here to give program managers an idea of what to plan for. Time estimates given are for a full care-seeking study (one investigating all steps in the case management process) rather than for a specialized one.

1) Planning the research

Planning involves the technical tasks of defining the research questions, adapting the protocol, testing instruments, determining the sampling plan, and preparing for training. It also involves recruiting the research team and making logistical arrangements for the training and the research.

It is likely to take at least a month to accomplish these activities, but the amount of time can vary, depending on many things, including:

- the amount of experience the principal investigator has in doing formative research on care-seeking
- the extent to which existing instruments need to be adapted to meet the specific program needs or context
- the availability of data collectors
- the complexity of logistical arrangements (such as ease or difficulty in arranging transport or lodging)

2) Training

The team will need to have basic background information on malaria transmission, control, and treatment; and receive training in the methodologies to be used in the field. The amount of time necessary will depend on the degree of experience the team has in using qualitative approaches. Even a team composed of people who have used qualitative methodologies in other field studies will need about a week to become familiar with the data collection and recording instruments. It is usually helpful to continue "coaching" the team in field skills even when they start data collection.

3) Fieldwork

The amount of time required for conducting the fieldwork is highly variable, and depends on a number of things, including:

- the nature and scope of the research questions
- the degree of diversity of the population under study, which affects sample size
- the geographical size of the region under study, and time required to travel from site to site
- the size and expertise of the team

The number of communities to include in the sample depends mostly on the amount of diversity in the population under study. Each major cultural group that may have a different care-seeking pattern should be included. Thus, the more diverse the population, the greater the number of communities needed. Sometimes it is important to take into account other kinds of variation when determining the sample. For example, if the population is served by different levels of health facility, it may be important to select sample communities from each level: dispensary, health center, hospital. Ordinarily, a minimum of six communities is needed to check for variation and a maximum of eighteen is manageable. The Principal Investigator should work with those familiar with the region to develop an appropriate sampling plan.

Sometimes a week in the field can shed much light on a specific question, but sometimes several months are necessary. A rule of thumb for executing the protocol in *Community Case Management of Childhood Malaria: Research protocol and Field Guide* is that four to five field team members can cover one village/community in two to three days. On average, the data collection period for a focused and well organized research project looking at care-seeking patterns is two to six weeks.

4) Analysis and writing summary report of findings

Analysis should be conducted on a daily basis in the field, and the final analysis should take place with team members immediately following the field work. It is a good idea for the team to write a summary report of findings at the same time, so that findings can be documented while the information is "fresh" in their minds. This also allows program planners to use the basic results right away, without waiting for a full detailed report. Generally, conducting the analysis and generating the summary of findings takes two to three weeks.

5) Final report writing

The final report is the complete and more formal research report containing a description of the research design and method, and full documentation of the findings cited in the summary report. Ordinarily this final version is prepared by the principal investigator.

6) Dissemination

A final step in the process is dissemination. Although not a formal part of the research itself, dissemination fulfills the purpose of the research: to provide practical information in a timely manner. A discussion of results with ministry officials and other interested parties held soon after the summary report is drafted gives them rapid access to the findings. These sessions can take place at the district and national level, and can include WHO, UNICEF, and donor representatives as well.

Where possible, communities involved in the research should be presented with some of the basic findings and given a chance to discuss them. This acknowledges their contribution to the research and provides a forum for checking whether they feel the results to be accurate. The final, more formal report should be disseminated to researchers who are continuing to refine their understanding of behavioral issues and work on methodologies for studying them.

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Formative behavioral research can be designed to fit almost any budget and time frame. Even very modest studies can yield considerable pay-offs by grounding decisions in the reality of the community.

Overview of Protocol on Community Case Management of Childhood Malaria

A companion document entitled "*Community Case Management of Childhood Malaria: Research Protocol and Field Guide*"[12] was written for investigators who will plan and implement a study on community case management of young children who have fever or convulsions, key symptoms of malaria. The protocol in that document is a set of instruments (modules) that covers all of the major issues in community case management.

The main purpose of the research is to understand treatment-seeking for young children in order to serve as a basis for planning interventions to improve case management of febrile illness in the community and to improve the training of health providers. The six modules in the protocol are summarized below.

❖ COMMUNITY INTRODUCTION MODULE

Purpose:

- Provide team with an introduction to the village and gather contextual information relevant to the research
- Provide villagers with an introduction to team
- Find out provider options (both modern and traditional) and other health resources (e.g., sources of medication) the community has; put community at ease about talking freely about all provider options, including traditional healers
- Obtain general information on perceptions of quality of care at the health facility
- Gather information on IEC and communication factors for both women and men
- Identify households and informal providers to be interviewed

Method: Group interview and/or social mapping

Sample: A cross-section of community residents

❖ ILLNESS NARRATIVE MODULE

Purpose:

- Identify treatment-seeking patterns and the factors that affect treatment decisions
- Learn how caregivers define the beginning of an illness, what symptoms make them define a child as "sick"
- Find out how caregivers respond to an illness with fever and/or convulsions
- Obtain information on knowledge of correct dosage for anti-malarial and actual dose given
- Identify what prompts caregivers to seek help from various providers
- Determine the amount of time between onset of danger sign and treatment by a health worker
- Identify the factors that facilitate or impede appropriate care-seeking
- Identify obstacles to act on referrals
- Obtain some specific further information for the development of IEC strategies

Method:
Illness narratives eliciting detailed information on the timing, "content" and sequence of care-seeking, and factors that bear on decision making

Sample:
Caregivers of children with recent cases of fever and/or convulsions.

❖ TERMINOLOGY AND ILLNESS TAXONOMY MODULE

Purpose:

- Elicit terminology for fever, convulsion, malaria, anemia
- Construct local taxonomy of illnesses involving fever and/or convulsions
- Obtain normative information on suitability of different treatment options and types of providers for malaria
- Find out general perceptions of quality of care at the health center

Method: Group interview with freelisting and semi-structured questioning to fill in matrix

Sample: Principally women, but men may participate also

❖ TREATMENT OPTION MODULE

Purpose:

- Identify the most commonly used treatments—both traditional and commercial—for fever and convulsions.
- Review the availability and affordability of different treatment options in the study communities.
- Determine what factors influence caregivers' choice of treatment options, and how they interpret efficacy.
- Compare treatment options to find out which are preferred for what conditions or circumstances and why.
- Determine whether caregivers, drug vendors, and health workers know the difference between anti-pyretics and anti-malarials and how they use these classes of drugs.

Method: Open-ended interviews, case vignettes, pile sorts/ranking with locally-obtained treatment options

Sample: 2-6 caregivers per group; drug vendors, chemists, facility- and community-based health workers

❖ HEALTH FACILITY MODULE

Purpose: To find out

History of illness and triggers to care-seeking

- the illness signs or other factors that trigger caregiver to bring the child to the facility
- treatments tried and/or providers consulted prior to this health center visit
- the amount of time between onset of fever and clinic visit

Provider response to illness

- provider's understanding of the history of the illness and what caregiver has already done to treat
- provider's advice
- how provider terminology compares with caregiver terminology
- duration of consultation

Client satisfaction and ability to comply

- caregiver's ability to understand and recall advice
- caregiver's confidence in diagnosis and treatment advice
- other factors which facilitate or hinder treatment compliance

Treatment compliance (via 2-3 day follow-up with a subset of caregivers)

- compliance with medication regime; barriers to compliance
- compliance with return visits and referrals; barriers to compliance

Method: observation / interview

Sample: caregivers of children under 5 who have fever/convulsions or perceived malaria

❖ COMMUNITY AND INFORMAL PROVIDERS MODULES

PRIVATE CLINIC / DOCTOR

Purpose: To find out
- Role of provider in treating illnesses with fever, especially likely malaria
- Provider's treatment/recommendations for malaria
- Provider's treatment/recommendations for convulsions
- Provider's treatment/recommendations for anemia

Method: semi-structured interview

Sample: small private clinics that serve the area around the sample village

TRADITIONAL HEALER / CHW

Purpose: To find out
- Role of provider in treating illnesses with fever, especially likely malaria
- Provider's perception of causes of fever
- Provider's treatment/recommendations for fever
- Role of provider in treating illnesses with convulsions
- Provider's perception of causes of convulsions
- Provider's treatment/recommendations for convulsions
- Provider's perception of causes of anemia
- Provider's treatment/recommendations for anemia

Method: interview

Sample: health providers consulted by the community who are not based in a facility

PHARMACISTS / DRUG VENDORS

Purpose: To find out
- Role of vendor in treating malaria in children
- Vendor's advice/recommendations for malaria treatment
- If caregivers seek advice from vendor on which drug to purchase to treat malaria in children
- If caregivers seek advice from vendor on dosage to treat malaria in children
- Amount of dose generally purchased (full vs. partial)

Method: Interview / observation

Sample: pharmacists, shop sellers, market and street vendors

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[9] See, for example, J. Murray and S. Manoncourt (1998), *Using Local Planning to Improve the Quality of Child Care at Health Facilities* available from the USAID-sponsored BASICS Project in Arlington, Virginia. Guidelines for IMCI surveys on health services are in the process of being developed by WHO, UNICEF, CDC, USAID and BASICS.

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[12] Available through the Support for Analysis and Research in Africa (SARA) Project:
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